

later retrieval by a server process and/or at a request from a client device **420**, **425**. For example, server **130** may execute processes (based on program code stored in data store **140** or a memory local to the server **130**, for example), to perform trending and reporting functions to one or more client devices **420**, **425**. For example, server **130** may provide to a client device **420** information to enable generation of a display **500**, **600**, **700** or **800** (FIG. **5**, **6**, **7** or **8** respectively) via browser application **440** at client device **420** or **425** in response to a request for such information or automatically at regular intervals. Display **500** may chart historical and current data for one or more conditions of operation of the pressure sewer installations **100** at different locations over a period of time. For example, as shown in FIG. **5**, display **500** may include a chart **540** of fluid levels at a particular pressure sewer installation **100** over a period of time, as well as displaying status information **530** for a number of operational parameters of the installation **100**.

[0111] Server **130** executes a user interface **430** based on locally accessible stored program code to allow users of client devices **420**, **425** to access configuration, control, monitoring and reporting functions of server **130** with respect to installations **100**. The user interface **430** thus acts as a control and configuration tool accessible to users of client devices **420**, **425**. The user interface, control and configuration functions of user interface **430** are primarily performed by server **130**, but some functions may be executed in part by the browser application **440** on client devices **420**, **425** based on code, including applets for example, served to the respective client devices **420**, **425** from server **130**.

[0112] In alternative embodiments, instead of browser application **440**, each client device **420**, **425** may execute a specialised software application stored in local memory accessible to the processor of the device. This specialised application may perform various user interface functions locally and communicate with the server **130** as necessary. For example, for mobile client computing devices **425**, the specialised application may be in the form of a “smart phone” application.

[0113] Displays **500**, **600**, **700** and **800** shown in FIGS. **5**, **6**, **7** and **8**, respectively, may be generated at client device **420**, **425** by a suitable software application executing on the client device **420**, **425**, such as browser application **440** when executed by a processor of the client device **420**, **425** according to program code stored in the local storage accessible to that processor.

[0114] In preferred embodiments, transceiver unit **120** is enabled for bidirectional communication with server **130**, so that new fluid level thresholds can be set, control commands can be issued, firmware updates can be received and/or diagnostic monitoring and testing can be performed remotely.

[0115] Pressure sewer monitoring system **400** thus comprises a series of installations **100** located around an area or zone for which operational status is desired to be monitored. These installations **100** communicate with server **130**, which in turn communicates with client devices **420**, **425** as necessary. Server **130** also tracks and stores historical data received from the installations **100** and processes the incoming and historical data according to rules stored in data store **140** to determine whether certain pre-defined events of interest may be occurring. Such events may be complex events and may be defined in the stored rules as such. In order to optimally manage a particular sewerage zone or zones, for example in flood situations system **400** may control installations **100** to

cease normal autonomous operation for a period of time or to operate under a higher level set-point.

[0116] In system **400**, each installation **100** may be configured to have the same or a similar set of operational parameters (i.e. alarm levels, sensor sampling times, reporting intervals, etc.) and may have the same set of sensors **112**, **212** and general configuration.

[0117] In some embodiments of system **400**, the transceiver unit **210** of each installation may be configured to send a message directly to a mobile communication device of an end user (i.e. client device **420**, **425**) when an alarm condition is determined by controller **208**. This may be instead of or in addition to sending the message to the server **130**.

[0118] Advantages of the described embodiments over prior pressure sewer systems include a substantially improved remote control and monitoring capability. This is further supported by use of a mobile telephony standard protocol to facilitate point-to-point or point-to-multi-point communication between the server **130** and the controller **208** of each pump control system **110**.

[0119] There are also substantial advantages in providing the level sensor output from each level sensor **112** to the remote server **130** on a regular basis, to allow monitoring and optimised usage of sewage network infrastructure when a number of installations **100** are monitored and controlled separately or together as part of the same pressure sewer system **400**. For example, usage histograms, such as those illustrated in FIGS. **9A** and **9B** can be obtained for different zones.

[0120] The described embodiments allow calculation of real time waste fluid volumes, which provides accurate engineering data for planning and design purposes. Described embodiments also allow real time calculated waste fluid flow monitoring, which can be used with remote control of the pumps **124** by commands from server **130** to manage peak flows discharged into sewer mains and treatment facilities. This can more evenly distribute the waste fluid flows over time, which can ease the burden on the processing infrastructure and reduce the risk of breakdown of the infrastructure.

[0121] Further advantages associated with described embodiments include the ability to infer the likelihood of leakage from one or more installations **100**. For example, for a given installation, **100**, the number of level changes during a particular period, such as the time between 2.00 a.m. and 3.00 a.m., together with a measure of the amount of level change over time (such as millimetres per minute) can indicate the likelihood of a leak at the site of the installation **100**. A steady rise in the fluid level during that period over a number of days can indicate a small leak. Maintenance personnel can therefore be dispatched to the site to investigate before the leakage becomes a significant problem. The described embodiments therefore allow organisations, such as those responsible for maintenance of the pressure sewer network, to identify and address problems with one or more installations **100** before they develop into a complaint by the inhabitant of the domicile **102**.

[0122] Referring in particular to FIG. **5**, the system **400** comprises capabilities, including suitable software and hardware modules, to execute user interface **430**, which allows operational maintenance personnel to monitor and remotely control the operation of each installation **100**. Display **500** in FIG. **5** is an example of a user interface display generated by browser application **440** based on program code and/or data served from server **130**. Display **500** has a graphical depiction